Session 1: Composting and Soil Fertility

Room B
8 March 2014
Recorded by Leah Lazer

Panel Section

Jim Corbin, Sustainable Ag at Bristol Community College

- Runs certificate and Degree program in Sustainable Ag in 5th year
  - Courses on beekeeping, organic master gardeners program
- Out of concern for climate change, peak oil, food quality in local area
  - Focus on urban areas
- Grandparents farmed in Muddy Creek → now Brookline

Derek Christensen

- Commercial enterprise with community focus
- Focused on food quality and nutrient content in different foods
- Also talk about technical side – timing, water, fencing
- Natural system is bountiful if we let it function like it needs too
  - We often create imbalances in our system with fertilizer, etc, without thinking of full system
  - Trace minerals are important as cofactors for enzyme production. Need to know what's in your soil – testing to provide information for amendment decision.
- Try to capture as much solar energy as possible – combine sun with minerals in the earth and atmosphere to create food!

Bruce

- As composter, competes with solid waste industry structure in term of politics and economics
- Many soils do not need any more compost! Advises smart use of amendments, mulches, fertilizers.
- Many ways to achieve soil health. Need to understand native soil. Can "import" compost from neighbors.
- Much of urban post-human waste contains large physical contaminants (debris), also less visible chemical contaminants.
  - City processes that human waste compost and returns it into landscaping, compost, etc. If compost has a label or is in a sealed bag, that doesn't mean it came from a farm or that it is "clean."
- Persistent herbicides create problems in composting – can pass through many cycles and kill plants if in compost! Some were banned but are still in nutrient cycle.
  - Including aminopyrilids. Used in grain and alfalfa production to prevent weeds in fields. Mostly used on landscape plants as an herbicide.
- Composting facilities need to be careful of what they take in and what they test for before it goes out. Mostly leaves are the cleanest - weeds and manure are the problem.
- Herbicide residues in compost will damage crops! Discovered problem when plants started dying.
- Handles organic fraction of Boston's solid waste stream – incumbent on their company to do quality control, which adds cost. Can spend a lot of money on testing.
- Concerned about lead levels, trash (glass, plastic, metals), persistent herbicide. Best test isn't from a lab, instead use growth trials. But, some don't trust the unverified results of their lab test. A3rd party test is best approach, but testing isn't always possible or affordable.

Q&A Section

- Jim: Municipal sewage products need to be tested by EPA certified report. They certify it as "good for all uses" or not. But, the reliability of that depends on what they tested for. When he check, they didn't

test for heavy metals, biological pathogens, pharmaceuticals. "Good" means that everything that they tested for was within acceptable levels, but you have to ask what tests were done.
    - UMass soil lab tests for heavy metals, but not for persistent herbicides unless you pay extra for that test.
- Herbicides can pass through the digestive system of a cattle and still be toxic in their manure, enough to kill plants exposed to that composted manure.
- Derek: You need to "Know Your Supplier/Composter." Fits with MA campaign "Know Your Farmer. Also need to know your seed producer, etc. Get on the phone and ask questions. Their farm doesn't use compost because haven't found a producer they want to use, and compost might not be economical on their scale.
- Bruce: There are some bad actors in composting industry. The industry is set up to allow people to cut corners. The ones that do save costs and then can put in low bids and get contracts, because no one checks their practices, sources, testing, etc. We want to see community supported composting – like CSA model. It would help build accountability and standards in practices → responsible composting!
- Composting is not a desirable facility to live near – there is smell, runoff, rats, flies, especially if done wrong. It's hard to do small scale composting well without those problems. You can really hurt your neighbors!
    - Small-scale composting isn't necessarily better because it's so hard to manage well.
    - We need advocates for the process as well as the product. When people purchase materials, should know what's in it and when they came from.
- There are also concerns about seeds from weeds contaminating compost. They should be killed by high temperatures in composting process, but it's mor ecostly to do it that way, to make sure it gets hot enough. Especially problematic for invasive species of weeds.
    - Who pays for the higher cost of that? Operators? Consumers? Gov grants?
    - Need balance between toxins and saving money/time/anxiety.
- Are PAH's a cause for concern? You need to know your source, who will tell you where they got their raw materials and what tests they did.
    - Some work at Boston College public health and Boston University. They look at how PAHs get in to soil – mostly from cars and burnt down buildings. It's historic in existing soil.
    - Natural systems deal well with certain things, including carbon which is in PAHs. We even put coal in some soil to stimulate microbial activity.Bioremediation uses plant uptake of carbon. Effectiveness depends on the source of the contaminant.
- Detection is at parts per billion for most tests.
- MA is starting a ban on organic waste entering landfills from commercial facilities that produce over one ton of waste per week. Where will that compost go? There isn't enough infrastructure yet. There is also a 10 year plan for total elimination from all residences.
    - Who to contact for details? Jeremy Pollano from Mass Dept Ag Resources. They have been having stakeholder meetings on this for 2 years, developing resources for program, loan program to develop infrastructure to support large scale composting.
    - Department of Environmental Protection – John Fisher is main contact. They also have information on their web page.
- From current food waste stream, most "low hanging fruit" is already being captured and sent to pig farmers and anaerobic digestors. Existing businesses include boostrap composters and save that stuff. They work with City Soil to set up composting operations. There is hope for a large scale facility based on the small scale current pilot.
    - Betsy Johnson – audience member that is involved.
- How do small scale gardens/farms make sustainable, marketable compost?
    - Stay away from lawn clippings/grass – have many inputs.
    - Tree leaves are usually the least contaminated, and many people dispose of them – good resource for composting that is available and usually safe. Can just pick up leaves from neighbors in September.

    - Leaves have a lot of carbon so need to balance with nitrogen in the compost.
- Start small with your own composting – experiment, go with natural cycle.
- Question about composting resources - Natural Resources Conversation Service at USDA has a lot of resources. Office in Wareham. One of the few pools of government funding for infrastructure improvement for farms.
- MA doesn't really have functional cooperative extension, but that is often being replaced by Master Gardener programs in many associations around the states.
    - Mostly volunteers and un-resourced, but knowledgeable and do community service as part of program.
    - Much more local-level focused, less official than NRCS. Available for small scale projects – school, community projects.
    - Run from Boston Natural Areas Network in Boston.
- Woodchips are good! Clean, often can get delivered to site for free, can be used for heating, growing beds, hothouses. With food waste, need to avoid making rat habitat! Woodchips help with that. You don't want to lose the trust of your neighbors.
- Can get creative about what you compost – paper, etc. But often things like paper can get recycled in to higher-value products than compost.
- Much of "food waste" is commingled with waxed and corrugated cardboard. That cardboard is effective as a mulch because it heats up well.
    - Pay attention to micronutrients in paper, cardboard – strange things are in inks, glues, etc. Toxins are in ink, bleaches, metal-based dyes, so be careful if you're using it for food supply. Especially problematic in newsprint.
- We're not trying to scare you away from composting! It's good! You just need to be careful about your inputs.
- It's also a crucial tool to get carbon back in to the soil, now that most of it is in the atmosphere. Consider soil carbon levels, not just food production needs, to mitigate climate risks of agriculture.
    - But avoid excessive levels of compost in some agricultural situations, especially with high levels of certain nutrients like potassium.